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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/065,879	11/27/2002	Christopher A. Newton	BUR920010144	5280

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EXAMINER	
LUND, JEFFRIE ROBERT	
ART UNIT	**PAPER NUMBER**
1763	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/065,879	NEWTON ET AL.	
	Examiner	Art Unit	
	Jeffrie R. Lund	1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 June 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3,4,6-9,11,17 and 19-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *1, 3, 4, 6-9, 11, 17, and 19-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *14 July 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claims 21, 22, 25, and 28 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The claims all depend on claim 1 and require a first fluid feed line is connected to a first source of a first fluid that supplies the first channels N_1, and a second fluid feed line is connected to a second source of a second fluid that supplies the second channels N_2. Claim 1 requires this same structure, therefore, claims 21, 22, 25, and 28 fail to limit claim 1 from which they depend.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 4 and 19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 4 and 19 recite the limitations "the first plurality of channels" and "the second plurality of channels". There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claim 1, 3, 7-9, 11, 17, 19-22, 24, 25, 27, and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Deacon et al, US Patent 5,792,269, in view of Mitani et al, JP 3-281780 and Carpenter et al, US Patent 6,821,347 B2.

Deacon et al teaches a chamber 25 adapted for holding a workpiece 28 10.16 mm (0.4 inches) from a distribution plate 30; an annular ring (baffle plate) with holes for constricting the exhaust gases; and an upper annular ring (insulator) that forms a space between an edge of the upper annular ring and a wall of the chamber that restricts a flow of fluids in the chamber. (Figure 2) The distribution plate 30 includes circular I rings (I=6 denote as R_1, R_2, …, R_6 in figure 19) around a common point, and divided into a first group I_1 (facing radially outward and including rings R_1, R_3, and R_5) and second group I_2 (facing radially inward including rings R_2, R_4 and R_6) and no other rings. I rings collectively comprise N channels 42 where N is greater than 2*I with no other channels. Channels N_1 of I_1 and channel N_2 of I_2 have a constant angle of 72 degrees and supply gas to the chamber. (See Entire document, specifically, figures 2, 6, and 19).

Deacon et al differs from the present invention in that Deacon et al does not disclose that: the I_1 rings supply a first gas, and a I_2 rings supply a second gas; the first gas supply is connected only to the channels N_1 via a first gas supply line; the second gas supply is connected only to the channels N_2 via a second gas supply line; the first angle is different than the second angle; or the channels N_1 and N_2 have an offset angle

α and β (as defined in the applicant's specification in paragraph 53) at a range of angles 0 to ±45°.

Mitani et al teaches an apparatus that includes: a gas distribution plate 112 with a first plurality of channels located in a first groove 22 for providing a first fluid from a first fluid supply 11 via a first fluid feed line 12b to the chamber, and a second plurality of channels located in a second groove 23 for providing a second fluid from a second fluid supply 11 via a second fluid supply line 12c to the chamber. The first and second fluids are not premixed. (Figures 1 and 2 and throughout the specification, specifically, working example 1)

Carpenter et al teaches a distribution plate 770 having a first plurality of channels 172a and a second plurality channels 172b. The channels have an angle between 45 and less than 90 degrees, and the second plurality of channels have an angle different from the first plurality of channels (figure 7). The channels 172a are also offset from the XY plane at an offset angle α and β (as defined in the applicant's specification in paragraph 53) at a range of angles 0 to ±45° (Figures 5). Carpenter et al also teaches that the specific angle of the channel to the XY plane and the offset angle to the XY plane (canted passageway) can be varied. (Column 3 lines 21-48)

The motivation for adding the grooves of Mitani et al to the apparatus of Deacon et al is to independently supply process gases to prevent the fluids from premixing and to independently control the flow of fluid in each groove to optimize the gas distribution as taught by Mitani et al.

The motivation for making the angles of the first N_1 and second N_2 channels

different and providing an offset is to optimize distribution of the gases to the surface of the substrate as taught by Carpenter et al.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to add the sources, fluid feed lines, and grooves of Mitani et al to the apparatus of Deacon et al, to make the angles of the first N_1 and second N_2 channels of Deacon et al different as taught by Carpenter et al, and provide an offset in the channels of Deacon et al as taught by Carpenter et al.

5. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Deacon et al, Mitani et al, and Carpenter et al as applied to claims 1, 3, 7-9, 11, 17, 19-22, 24, 25, 27, and 28 above, and further in view of Plavidal et al, US Patent 5,718,795.

Deacon et al, Mitani et al, and Carpenter et al differ from the present invention in that they do not teach that the dispersion plate is made of polytetrafluoroethylene.

Plavidal et al teaches that the dispersion plate is made of polytetrafluoroethylene (Teflon®) (column 4 lines 48-49).

The motivation for making the dispersion plate out of polytetrafluoroethylene is to provide a material of construction, which is required but not disclosed by Mitani et al and Deacon et al. Polytetrafluoroethylene is well known in the art and is used because it is chemically inert. Furthermore, it has been held that: the selection of a known material based on its suitability for its intended use is prima facie obviousness (*Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945)); and reading a list and selecting a known compound to meet known requirements is no more ingenious that selecting the last piece to put in the last opening in a jig-saw puzzle (325 U.S. at 335, 65

USPQ at 301).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to make the dispersion plate of Deacon et al, Mitani et al, and Carpenter et al out of polytetrafluoroethylene as taught by Plavidal et al.

6. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Deacon et al, Mitani et al, and Carpenter et al as applied to claims 1, 3, 7-9, 11, 17, 19-22, 24, 25, 27, and 28 above.

Deacon et al, Mitani et al, and Carpenter et al differ from the present invention in that they do not teach that the volume of the grooves is greater than a volume of the channels.

The motivation for making the volume of the grooves larger than the volume that the channels is so that the grooves function as plenums to uniformly distribute the fluids to each of the channels. Furthermore, it was held in *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984), by the Federal Circuit that, where the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device. (Also see MPEP 2144.04 (IV)(A))

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to make the grooves of Deacon et al, Mitani et al, and Carpenter et al with a larger volume than the volume of the channels.

7. Claims 23, 26, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Deacon et al, Mitani et al, and Carpenter et al as applied to claims 1, 3, 7-9, 11, 17, 19-22, 24, 25, 27, and 28 above, and further in view of Sasaki et al, US Patent 6,685,848 B1.

Deacon et al, Mitani et al, and Carpenter et al differ from the present invention in that they do not teach that the first fluid is ammonia and the second fluid is hydrogen fluoride.

Sasaki et al teaches using ammonia and hydrogen fluoride as etching gases to etch a thin metal film (abstract, column 6 lines 19-27).

The motivation for supplying the apparatus of Deacon et al, Mitani et al, and Carpenter et al with ammonia and hydrogen fluoride is to enable the apparatus of Deacon et al, Mitani et al, and Carpenter et al to etch a thin metal film as taught by Sasaki et al, or to clean the apparatus after it has been used to deposit a material.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to use ammonia and hydrogen fluoride in the apparatus of Deacon et al, Mitani et al, and Carpenter et al as taught by Sasaki et al.

Response to Arguments

8. Applicant's arguments with respect to claims 1, 3, 4, 6-9, 11, 17, and 19-29 have been considered but are moot in view of the new grounds of rejection.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrie R. Lund whose telephone number is (571) 272-1437. The examiner can normally be reached on Monday-Thursday (10:00 am - 9:00 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 123-456-7890. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jeffrie R. Lund
Primary Examiner
Art Unit 1763

JRL
9/4/07